## AMENDMENTS TO THE CLAIMS

Please amend the claims as follow:

1. (Currently amended) A method of cleaning a chemical vapor deposition (CVD) reaction chamber with cleaning gas provided through a remote plasma discharge chamber, comprising:

dissociating cleaning gas within the remote plasma discharge chamber ~~by applying energy with a power of less than about 3,000 W~~, wherein said dissociated cleaning gas is exposed to an anodized aluminum alloy wall of the remote plasma discharge chamber;

supplying activated species from the remote plasma discharge chamber to the reaction chamber through a piping, wherein a surface of the piping that is exposed to the activated species is a fluorine passivated surface;

opening a valve on the piping after conducting a CVD reaction and prior to supplying activated species, wherein opening a valve comprises withdrawing a valve body completely from a path to form an opening substantially as wide as internal surfaces of the piping; and

removing adhered deposits from CVD reactions on a wall of the reaction chamber ~~at a rate of greater than 2.0 microns/minute~~.

2-10. (Cancelled).

11. (Currently Amended) The method of Claim 1[[9]], further comprising closing the valve after removing the adhered ~~silicon nitride~~ deposits.

12-22. (Cancelled)

23. (New) A plasma chemical vapor deposition (CVD) reactor, comprising:

a reaction chamber;

a remote plasma discharge chamber, wherein the remote plasma discharge chamber comprises an anodized aluminum alloy wall and wherein said remote plasma discharge chamber is connected to the reaction chamber by piping;

a source of cleaning gas in fluid communication with the piping upstream of the remote plasma discharge chamber;

a through-flow valve on the piping between the remote plasma discharge chamber and the reaction chamber, the through-flow valve being configured such that, when fully

opened, it defines an opening substantially equal in width to an inner surface of the piping, and the valve does not have projections, when fully opened, with respect to the inner surface of the piping; and

a power source communicating energy with a frequency between about 300 kHz and 500 kHz to activate the cleaning gas within the remote plasma discharge chamber.

24. (New) The plasma CVD reactor of Claim 23, wherein the piping is straight between the reaction chamber and the remote plasma discharge chamber.

25. (New) The plasma CVD reactor of Claim 23, wherein the cleaning gas comprises a fluorine containing gas, and the piping supplies fluorine active species to the reaction chamber.

26. (New) The plasma CVD reactor of Claim 23, wherein the piping comprises internal surfaces formed of fluorine-passivated metal resistant to corrosion by fluorine active species.

27. (New) The plasma CVD device of Claim 23, wherein the piping is heated to between about 100°C and 200°C.

28. (New) The plasma CVD reactor of Claim 23 wherein a pressure drop is formed across the valve when fully opened and plasma is ignited within the remote plasma discharge chamber, the pressure drop being less than 1% of a pressure at an inlet to the chamber.

29. (New) The plasma CVD reactor of Claim 23, wherein the cleaning gas comprises a fluorine-containing gas and the power source communicates energy with a power between about 1,000 W and 5,000 W to produce fluorine active species within the remote plasma discharge chamber.

30. (New) The plasma CVD reactor of Claim 29, wherein the power source communicates energy with a power between about 2,000 W and 3,000 W to produce fluorine active species within the remote plasma discharge chamber.

31. (New) The plasma CVD reactor of Claim 23, configured to maintain pressure within the reaction chamber between about 1 Torr and 8 Torr.

32. (New) The plasma CVD reactor of Claim 23, capable of removing silicon nitride deposits from surfaces of the reaction chamber at a rate of greater than or equal to about 2.0 microns/minute when the power source communicates energy with a power of less than about 3,000 W.

33. (New) The plasma CVD reactor of Claim 23, capable of removing silicon oxide deposits from surfaces of the reaction chamber at a rate of greater than or equal to about 1.5 microns/minute when the power source communicates energy with a power of less than about 3,000 W.

34. (New) A self-cleaning chemical vapor deposition (CVD) reactor, comprising:

a reaction chamber;

a remote plasma discharge chamber connected to the reaction chamber by piping;

a gaseous source of fluorine in fluid communication with the piping, upstream of the remote plasma discharge chamber;

the piping comprises a through-flow valve positioned between the remote plasma discharge chamber and the reaction chamber, wherein the through-flow valve is configured such that, when fully opened, it defines an opening substantially equal in width to an inner surface of the piping, and the valve does not have projections, when fully opened, with respect to the inner surface of the piping, and wherein the piping is straight between the remote plasma discharge and the reaction chamber; and

a power source communicating energy to activate fluorine within the remote plasma discharge chamber.

35. (New) The CVD reactor of Claim 34, wherein a pressure drop is formed across the valve when fully opened and plasma is ignited within the remote plasma discharge chamber, the pressure drop being less than about 5% of a pressure at an inlet to the chamber.

36. (New) The CVD reactor of Claim 35, wherein the pressure drop is less than about 1% of the pressure at the inlet.

37. (New) The CVD reactor of Claim 36, wherein an internal surface of the piping comprises a fluorine-passivated metal.

38. (New) The plasma CVD reactor of Claim 34, capable of removing silicon nitride deposits from surfaces of the reaction chamber at a rate of greater than or equal to about 2.0 microns/minute when the power source communicates energy with a power of less than about 3,000 W.

39. (New) The plasma CVD reactor of Claim 34, capable of removing silicon oxide deposits from surfaces of the reaction chamber at a rate of greater than or equal to about 1.5

microns/minute when the power source communicates energy with a power of less than about 3,000 W.